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(54) **Apparatus for dispensing viscous fluids from flexible packages and holder for such packages**

Vorrichtung zum Abgeben von zähflüssigen Flüssigkeiten aus Beuteln und Kassette zum Lagern solcher Beutel

Appareil de distribution de liquides visqueux contenus dans des poches souples et cassette pour contenir de telles poches

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(56) References cited:
**EP-A- 0 785 023 EP-A- 0 905 046
US-A- 5 694 991 US-A- 6 003 731**

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Description

[0001] The present invention relates to an apparatus for dispensing viscous fluids from flexible packages according to the preamble of claims 1 and 2.

[0002] A prior art apparatus of this type is for example known from US patent 6/003,731. It discloses a dispensing apparatus including a stationary actuator that facilitates the removal of an empty package. The flexible packages consist of bags having a fitting which may be connected to a connector or conduit of an associated pump. If a package is empty, it can be replaced by removing it from the connector and mounting a new package thereon.

[0003] The object of the present invention is to provide an improved apparatus in which the replacement of a flexible package is further facilitated.

[0004] The present invention provides an apparatus for dispensing viscous fluids having the features of the characterizing portions of claims 1 and 2.

[0005] According to the invention, it is not necessary anymore to handle and manipulate the flexible package in order to mount it to the connector of a pump. The rigid holder surrounding the flexible package is easier to handle making it easier to place the package onto the connector by bringing the positioning members of the holder and table/pump into engagement.

[0006] Preferably, the holders are each formed as a rigid openable casing adapted to receive the flexible package therein. The holders have a bottom part or a wall part near the bottom including a retainer for fixing a dispensing part of the flexible package to the casing to obtain the predetermined position.

[0007] To further facilitate the correct placement of the holders, there are provided guiding members for guiding the holder to a position in which the first and second positioning members engage and in which the dispensing part of the package is connected to the connector. The guiding members are formed on at least the holders, and in one embodiment, the guiding members are formed by the side walls of the holders. The horizontal section of the holders is configured as a sector of a circle or as a rectangle and the adjacent holders are positioned close to each other when placed on the table or to the support.

[0008] In this embodiment, the holders which are mounted on the support of the apparatus guide a holder which should be disposed between them. This configuration and arrangement of the holders not only leads to a proper guiding of the holders with simple means, but also enables an efficient use of the surface of the table so that a maximum number of packages can be mounted on a minimum table area.

[0009] Preferably, the casing of the holder has depressions in the side walls adjacent to the outer wall to enable the holders to be grasped from a row of closely placed holders on the table. This enables an easy handling of the holders despite the close placement of the

holders next to each other with hardly any spacing.

[0010] The invention also includes a holder for a fluid package for use in an apparatus for dispensing fluids according to the preamble of claim 12.

5 [0011] Such holder is known from EP-A-0 905 046. This prior art holder includes guide means in the form of holes in the wall of the holder, whereas the dispensing apparatus comprises pins adapted to engage the hole for guiding the holder when it is brought to the dispensing position.

10 [0012] The holder according to the invention comprises the features according to the characterizing portion of claim 12.

15 [0013] The invention will hereafter be further explained in the following detailed description in which reference is made to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

20 [0014]

Fig. 1 is a perspective view of a part of an apparatus dispensing viscous fluids in accordance with one embodiment of the present invention.

25 Fig. 2 is a perspective view of a part of an apparatus for dispensing fluids in accordance with a second embodiment of the present invention showing a turntable with a plurality of holders.

30 Fig. 3 and 4 are a perspective view and a side view, respectively, of the turntable of Fig. 2 with one of the holders lifted for removal.

Fig. 5 and 6 are views similar to those of Fig. 3 and 4 with said holder completely removed.

35 Fig. 7 and 8 are a perspective view and a side view, respectively, of the holder of Fig. 2-6, in closed condition.

40 Fig. 9 and 10 are a perspective view and a side view, respectively, (on different scales) of the holder of Fig. 7 and 8, in open condition showing the flexible package therein.

45 [0015] It should be understood that the drawings are not necessarily to scale and that the embodiments are sometimes illustrated by graphic symbols, phantom lines, diagrammatic representations and fragmentary views. In certain instances, details which are not necessary for an understanding of the present invention or which render other details difficult to perceive may have been omitted. It should be understood, of course, that the invention is not necessarily limited to the particular embodiments illustrated herein.

DETAILED DESCRIPTION OF THE PRESENTLY PREFERRED EMBODIMENTS

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[0016] Turning first to fig. 1, a part of an apparatus for dispensing viscous fluids is shown. This dispensing apparatus is an automated version and includes a turntable

ble 1. This turntable 1 is rotatable about a verticle axis by means of a drive (not shown) in order to rotate the turntable 1 between descrete positions.

[0017] On the turntable 1, there is mounted a plurality of pumps 2, in this case sixteen pumps. In this embodiment, the pumps 2 are of the piston-type including a piston 3 having a lower end (not shown) disposed within a cilinder 4 of the pump and an upper end 5 that may be engaged by an actuator (not shown) adapted to move the piston 3 upward during an intake stroke and downward during a discharge stroke. The actuator is stationary and the turntable is adapted to position one of the pumps 2 in line with the actuator in order to enable it to actuate the pump. Each pump is associated with a fluid container, in this case two types of fluid containers: either a stationary type cannister 6 or a replacable flexible package 7 (not shown) contained in a rigid, removable holder 8. When one of the cannisters 6 is empty or nearly empty, it should be refilled by pouring fluid, such as a paint component, into it. When a flexible package 7 is empty, the package and the holder 8 containing it can be removed, the holder 8 can be opened to take out the empty package and to insert a new, full one, whereafter the holder 8 and the full package 7 can be placed back in the original position.

[0018] Further features of the holder will be described with reference to Fig. 2-10 showing a second embodiment of the apparatur and holders. Fig. 2-6 again show a turntable 1 with a plurality of holders 8. In this case, the pumps are mounted below the turntable 1 and are not visible in the drawings. Visible are only valve blocks 9 which are in communication with the cilinders of the pumps and with the respective flexible package 7 when connected. The pump arrangement may be constructed like the embodiment that is disclosed in US patent 6,003,731 the contents of which are incorporated herein by reference thereto.

[0019] Fig. 3-6 show one connector or nipple 10 mounted on an associated positioning block which is aligned with the valve block 9. Around this positioning block 11, there is arranged a lifter 12 with a handle 13, said lifter being able to exert an upward force onto the lower side of a mounted holder when the handle 13 is depressed.

[0020] Fig. 7-10 show one of the holders 8 separately, with a flexible package 7 contained therein. The holder 8 is configured as a rigid casing including two casing halves 14 and 15 which are connected through an integral, vertical hinge 16 connecting both halves to each other. The holder 8 has two side walls 17 and 18, a bottom wall 19 and an outer wall 20. When the holder 8 is in the closed position, the horizontal section of the holder casing is configured generally in the shape of a sector of a circle so that, when a plurality of holders 8, in this case twenty, are positioned side-by-side with the outer walls 20 circumferentially aligned, they form a ring. In the bottom wall 19 of each casing half 14, 15 there is formed a lateral recess in the edge of the bottom wall

line 10 which forms the half of a hole which is created when the casing halves 14, 15 are closed. This hole formed by the two recesses 21 functions as a retainer for holding a dispensing part 22 on the lower side of the flexible package 7. The dispensing part 22 has a body 23 fitting into the recesses 21 and an upper and lower flange 24, 25 retaining the dispensing part 22 relative to the bottom wall 19 of the holder 8 in vertical direction. Extending through the dispensing part 22 is a dipensing opening which opens outside the holder 8 when the package 7 is mounted within the holder.

[0021] The bottom wall 19 of the holder 8 is positioned at a level above the lower end of the side walls 17, 18, so that there is created a hollow 26 fitting over the positioning block 11 and thereby functioning as positioning means to position the holder 8 relative to the turntable 1.

[0022] Adjacent the outer wall 20 of the holder 8, there are created depressions 27, 28 in the side walls 17, 18 of the holder allowing the introduction of fingers of a hand enabling one holder 8 in a row to be grasped with the fingers. This facilitates an easy removal of a holder 8.

[0023] Fig. 5 and 6 show a turntable 1 and holders 8 mounted thereon, wherein one holder 8 is removed. In figures 3, 4, one holder 8 is introduced in the free spacing between two holders 8 and this spacing is approximately equal to the outer size of a holder 8, so that the side walls 17, 18 of the mounted holders 8 and the side walls 17, 18 of the holder 8 to be mounted function as guiding members to position the dispensing part 22 above the connector 10 to guide the holder 8 downwardly towards the connector 10. When the holder 8 is almost in its lowest position, the hollow 26 fits over the positioning block 11 and the dispensing part 22 fits over the connector which is inserted into the dispensing opening of the flexible package 7. In the mounted position of the holder 8, the dispensing part 22 is locked on the connector 10 and the hollow 26 is positioned over the positioning block 11, so that the holder 8 and thereby the flexible package 7 is securely mounted on the turntable 1. The apparatus is now ready for use.

[0024] Returning to fig. 1, it is shown that, in this embodiment, the guiding members for the holder 8 are configured as a vertical guide 30 on the turntable 1 in which a guiding part 31 of the holder 8 can engage in order to guide the holder 8 and the flexible package 7 contain therein to the correct position.

[0025] From the forgoing it will be clear that the invention provides an apparatus for dispensing fluids and a holder for use therein that are excellent regarding comfort of handling the flexible packages. The packages are very easy to replace and there is no risk of spillage of fluid.

[0026] The invention is not restricted to the embodiment shown in the drawing and described herein before, which may be varied in different manners within the scope of the invention. For example, it is possible to use a stationary or oscillating table to support the pumps and

11. Apparatus according to claim 10, wherein the second guiding members (30) on the turntable (1) comprise, preferably vertical, guide rails positioned near each connector (10) and adapted to slidably receive the first guiding members (31) of the holders (8). 5
12. Holder (8) for a fluid package (7) for use in an apparatus for dispensing fluids, comprising
- a rigid openable casing (14, 15) adapted to receive a flexible fluid package (7) therein, and having a wall part (19) near the bottom of the holder including a retainer (21) for fixing a rigid dispensing part (22) of the flexible package (7) to the casing (14, 15) such that a dispensing opening in the dispensing part (22) of the package (7) opens to the exterior of the casing (14, 15); and
- guiding members (17, 18; 31) for guiding the holder (8) to the position in which the dispensing part (22) of the package (7) is connected to said connector (10), 10
- characterized in that said guiding members (17, 18; 31) are constructed as wall parts of the holder (8), whereas there are provided positioning members (26) to position the holder (8) with respect to the apparatus such that the dispensing part (22) of the package is connected to a connector (10), said positioning members (26) being spaced from the retainer (21) for the dispensing part (22) of the package (7); 15
13. Holder as claimed in claim 12, wherein holder (8) is formed from two casing halves (14, 15) connected through a vertical hinge (16), the retainer (21) for the dispensing part (22) of the package (7) comprising two halves of a hole which, in the closed condition of the holder (8), form a hole adapted to contain the rigid dispensing part (22) of the flexible package (7) therein. 20
14. Holder as claimed in claim 12 or 13, wherein the horizontal section of the holder (8) has the shape of a sector of a circle, and a plurality of said holders (8) forming a ring-shape, the side walls of the holder (8) forming the guiding members (17, 18). 25
15. Holder as claimed in any of claims 12 - 14, comprising side and outer walls (17, 18, 20), and the positioning members (26) being formed by walls of a hollow, said hollow being defined by inner sides of said holder walls (17, 18, 20) which extend downwardly beyond said wall part (19) near the bottom of the holder (8). 30

Patentansprüche

1. Vorrichtung zur Abgabe viskoser Fluide, welche aufweist:
- einen um eine Drehachse drehbaren Drehteller (1);
- mehrere Pumpen (2), die an dem Drehteller angebracht und um dessen Achse herum verteilt sind, wobei die Pumpen jeweils einen Verbind-er (10) zum lösbaren Anschluss eines Fluidkanals sowie zugeordnete, erste Positionierungsteile (11) aufweisen;
- mehrere flexible Fluidverpackungen (7), die jeweils an einem Verbind-er (10) angeschlossen sind;
- gekennzeichnet durch** abnehmbare, starre Haltevorrichtungen (8), die jeweils so ausgebildet sind, in sich in einer vorbestimmten Position eine der flexiblen Fluidverpackungen (7) aufzunehmen, und zweite Positionierungsteile (26) aufweisen, die dazu ausgebildet sind, mit den ersten Positionierungsteilen (11) so zusammenzuwirken, dass eine Anordnung der Haltevorrichtungen (8) auf dem Drehteller (1) so ermöglicht wird, dass die darin aufgenommene Verpackung mit dem jeweiligen Verbind-er (10) verbunden ist.
2. Vorrichtung zur Abgabe viskoser Fluide, welche aufweist:
- einen Träger (1);
- mehrere Pumpen (2), die an dem Träger (1) angebracht und über diesem verteilt sind, wobei die Pumpen (2) jeweils einen Verbind-er (10) aufweisen, um mit ihnen lösbar eine flexible Fluidverpackung (7) zu verbinden, um Fluid aus dieser abzugeben, und welche zugeordnete, erste Positionierungsteile (11) aufweisen;
- mehrere flexible Fluidverpackungen (7), die jeweils mit einem zugehörigen Verbind-er (10) verbunden sind;
- gekennzeichnet durch** abnehmbare, starre Haltevorrichtungen (8), die jeweils dazu ausgebildet sind, in sich eine der flexiblen Fluidverpackungen (7) in einer vorbestimmten Position aufzunehmen, und zweite Positionierungsteile (26) aufweisen, die zum Zusammenwirken mit den ersten Positionierungsteilen (11) ausgebildet sind, um eine Anordnung der Haltevorrichtungen (8) auf dem Drehteller (1) so zu ermöglichen, dass die daran aufgenommene Verpack-

welcher der Horizontalschnitt der Haltevorrichtung (8) die Form eines Sektor eines Kreises aufweist, und mehrere der Haltevorrichtungen (8) eine Ringform ausbilden, wobei die Seitenwände der Haltvorrichtung (8) die Führungsteile (17, 18) bilden.

15. Haltevorrichtung nach einem der Ansprüche 12 - 14, welche Seitenwände und Außenwände (17, 18, 20) aufweist, und bei welcher die Positionierungsteile (26) durch Wände eines Hohlraums gebildet werden, und der Hohlraum durch Innenseiten der Haltevorrichtungswände (17, 18, 20) gebildet wird, die sich über das Wandteil (19) nahe dem Boden der Haltevorrichtung (8) heraus nach unten erstrecken.

Revendications

1. Appareil pour distribuer DES fluides visqueux, comprenant :

un plateau tournant (1) pouvant tourner autour d'un axe de rotation ;
une pluralité de pompes (2) fixées à, et réparties autour de l'axe du plateau tournant, les pompes ayant chacune un raccord (10) permettant de raccorder à celles-ci de façon amovible un récipient pour distribuer depuis celles-ci un fluide, et ayant des premiers organes de positionnement associés (11) ;
une pluralité de récipients de fluide souples (7) raccordés à un raccord respectif (10) ;

caractérisé par des éléments de maintien rigides amovibles (8) dont chacun est apte à recevoir dans celui-ci l'un desdits récipients de fluide souples (7) à une position prédéterminée et ayant des seconds organes de positionnement (26) aptes à coopérer avec les premiers organes de positionnement (11) pour permettre la mise en place des éléments de maintien (8) sur le plateau tournant (1) de façon que le récipient reçu dans ceux-ci soit raccordé au raccord respectif (10).

2. Appareil pour distribuer des fluides visqueux, comprenant :

un support (1) ;
une pluralité de pompes (2) fixées à, et réparties sur le support (1), les pompes (2) ayant chacune un raccord (10) permettant de raccorder à celles-ci de façon amovible un récipient de fluide souple (7) pour distribuer depuis celles-ci un fluide, et ayant des premiers organes de positionnement associés (11) ;
une pluralité de récipients de fluide souples (7) raccordés à un raccord respectif (10) ;

caractérisé par des éléments de maintien rigides amovibles (8) dont chacun est apte à recevoir dans celui-ci l'un desdits récipients de fluide souples (7) à une position prédéterminée et ayant des seconds organes de positionnement (26) aptes à coopérer avec les premiers organes de positionnement (11) pour permettre la mise en place des éléments de maintien (8) sur le plateau tournant

(1) de façon que le récipient reçu dans ceux-ci soit raccordé au raccord respectif (10).

3. Appareil selon la revendication 1 ou 2, dans lequel les éléments de maintien (8) sont chacun réalisés sous la forme d'un boîtier rigide (14, 15) pouvant être ouvert apte à recevoir dans celui-ci le récipient souple (7) et ayant une partie inférieure (19) comportant un élément de retenue (21) pour fixer une pièce distributrice (22) du récipient souple (7) au boîtier (14, 15) afin d'obtenir la position prédéterminée.

4. Appareil selon la revendication 3, comprenant des organes de guidage (17, 18 ; 30, 31) pour guider l'élément de maintien (8) à une position à laquelle les premier et second organes de positionnement (11, 26) s'engagent les uns dans les autres et dans lequel la pièce distributrice (22) du récipient (7) est raccordée au raccord (10).

5. Appareil selon la revendication 4, dans lequel les organes de guidage (17, 18 ; 31) sont au moins formés sur les éléments de maintien (8).

6. Appareil selon les revendications 1 et 5, dans lequel les organes de guidage (17, 18) sont formés par les parois latérales des éléments de maintien (8), la section horizontale des éléments de maintien est configurée sous la forme d'un secteur de cercle, et les éléments de maintien adjacents (8) sont positionnés à proximité immédiate les uns des autres lorsqu'ils sont placés sur le support ou le plateau tournant (1).

7. Appareil selon la revendication 6, dans lequel le boîtier (14, 15) des éléments de maintien (8) comporte des creux (27, 28) dans les parois latérales (17, 18) de façon adjacente à la paroi extérieure (20) pour permettre aux éléments de maintien (8) d'être saisis dans une rangée d'éléments de maintien (8) sur le plateau tournant (1).

8. Appareil selon les revendications 1 et 4, dans lequel les premiers organes de positionnement (11) comprennent une protubérance sur le plateau tournant (1) entourant le raccord (10) de chaque pompe (2) et les seconds organes de positionnement (26) comprennent un creux dans la paroi inférieure (19)

FIG.1

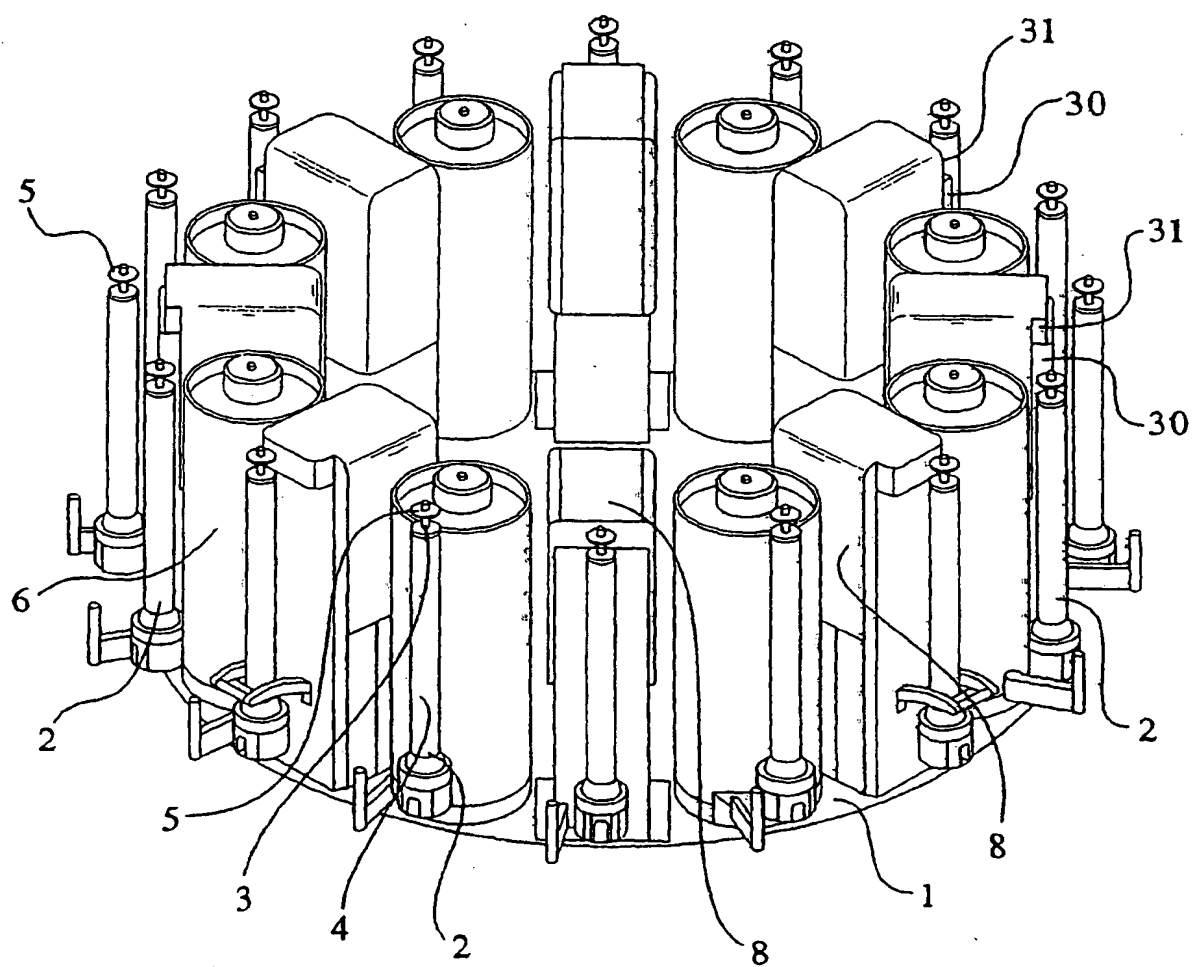


FIG.2

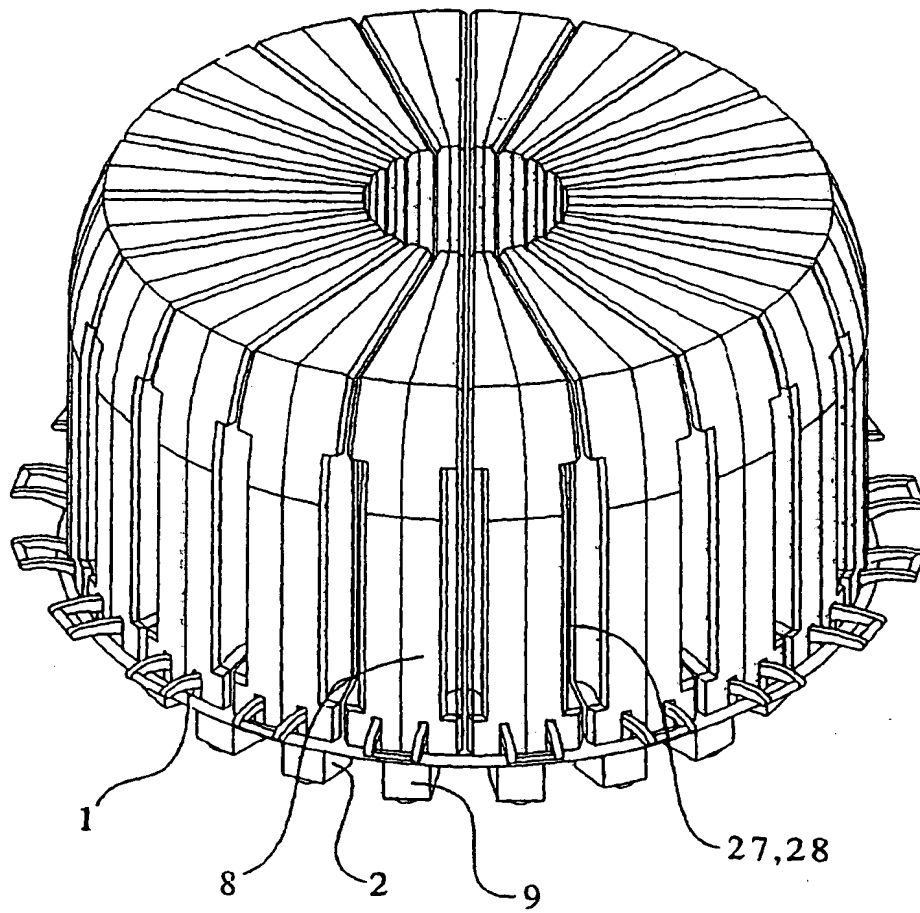


FIG.3

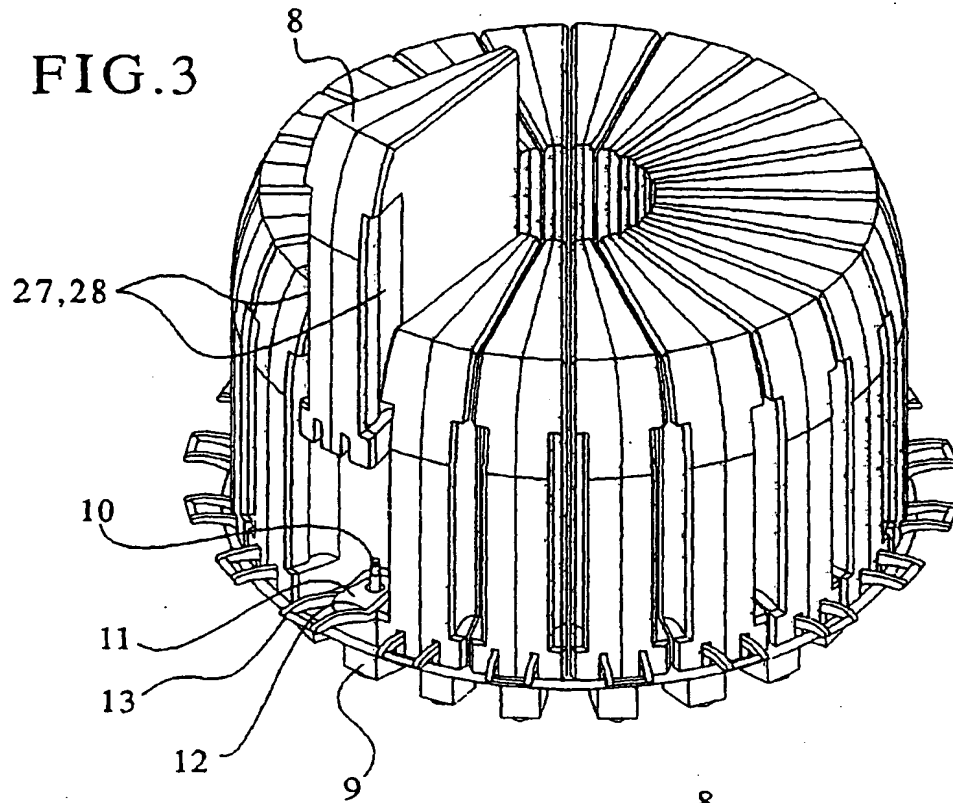


FIG.4

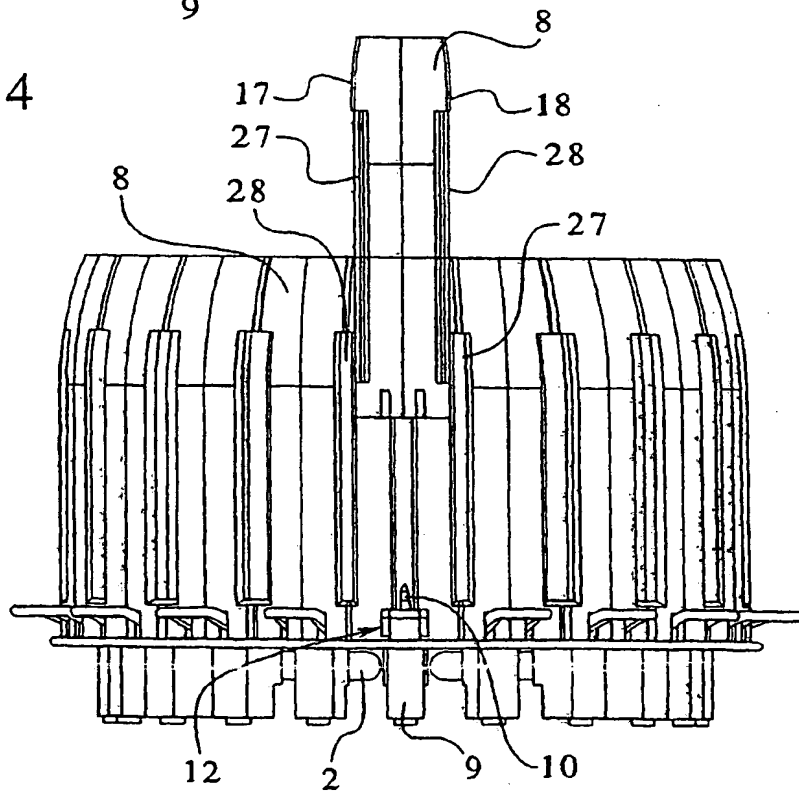


FIG.5

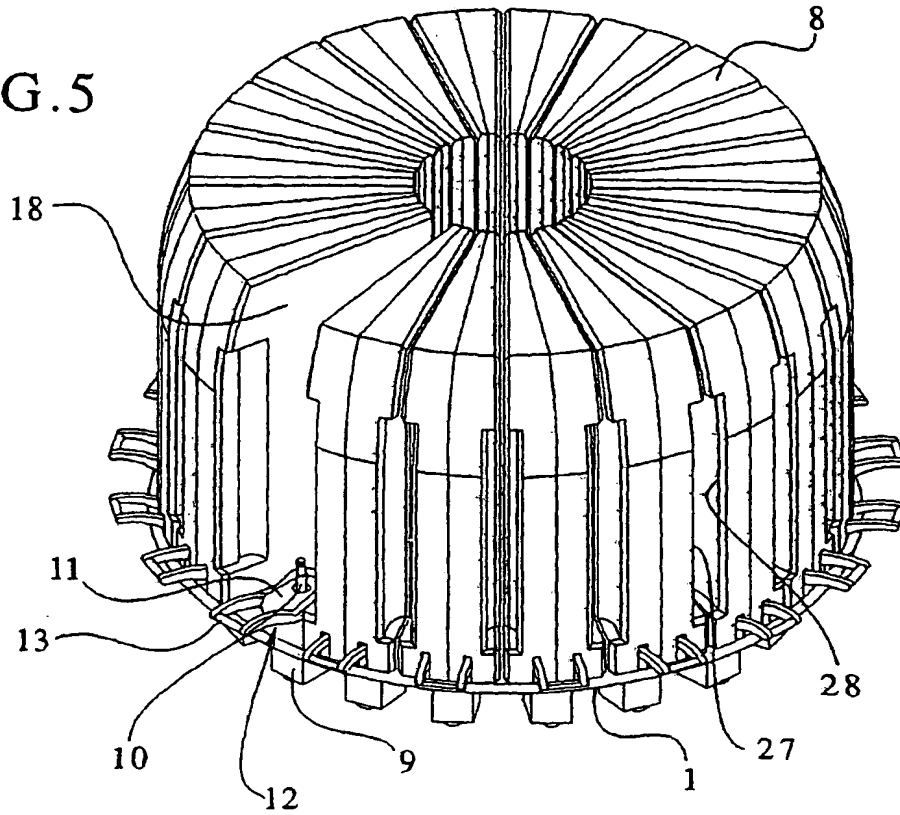


FIG.6

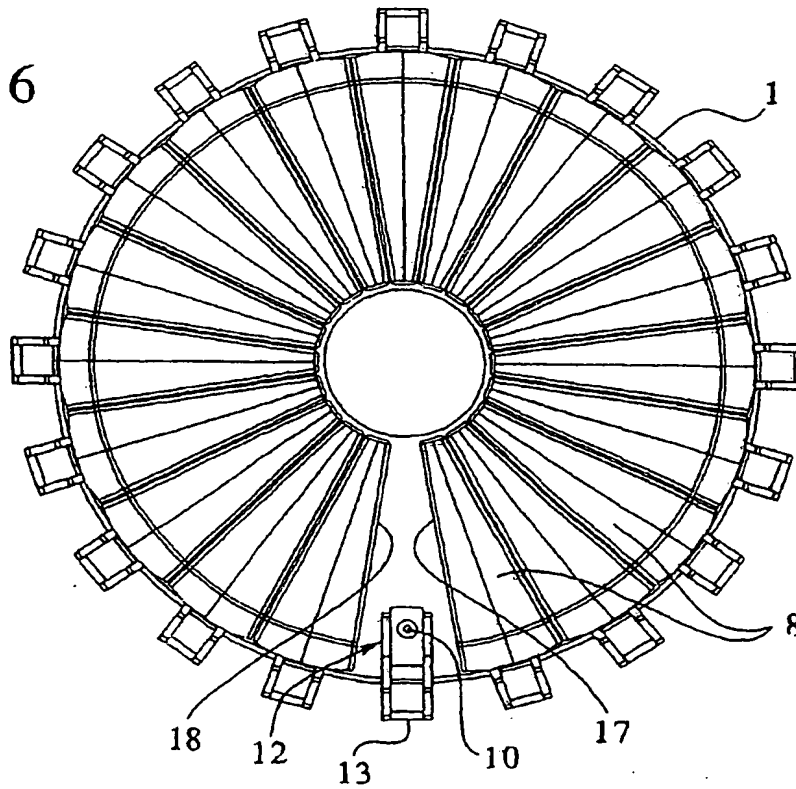


FIG.7

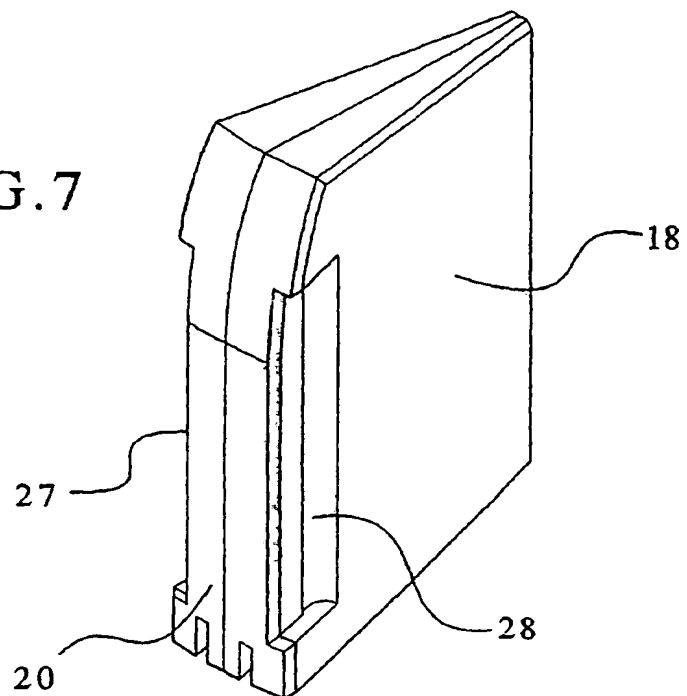
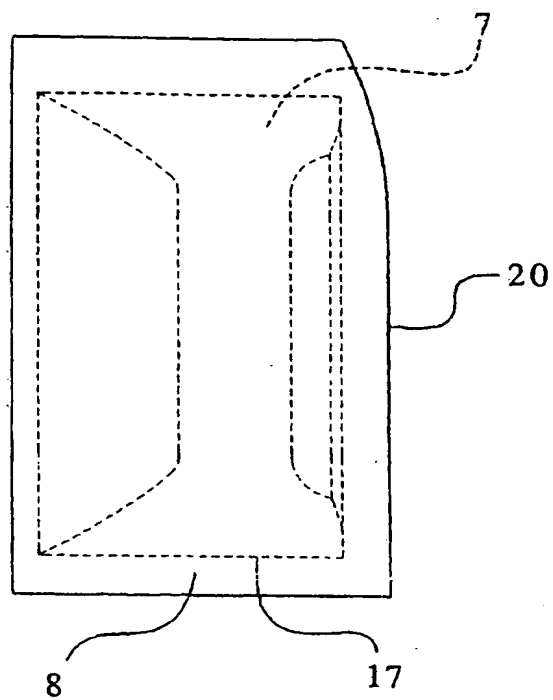


FIG.8



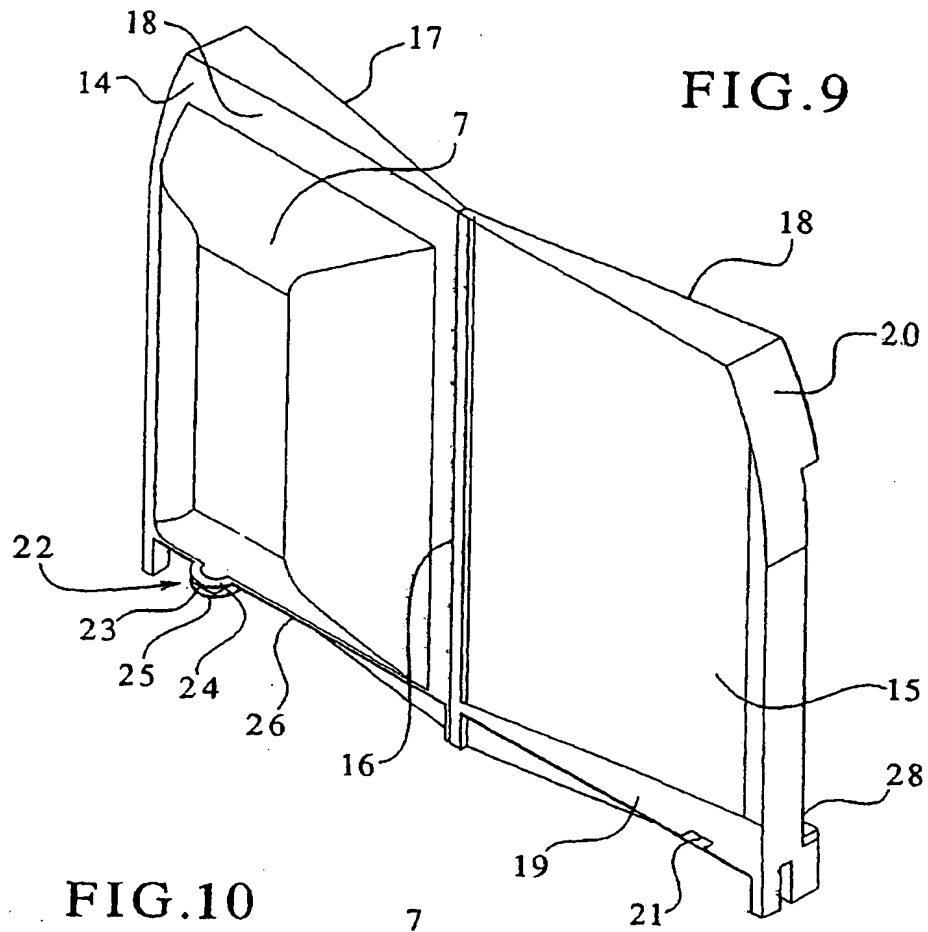


FIG.10

